

Fig. 1

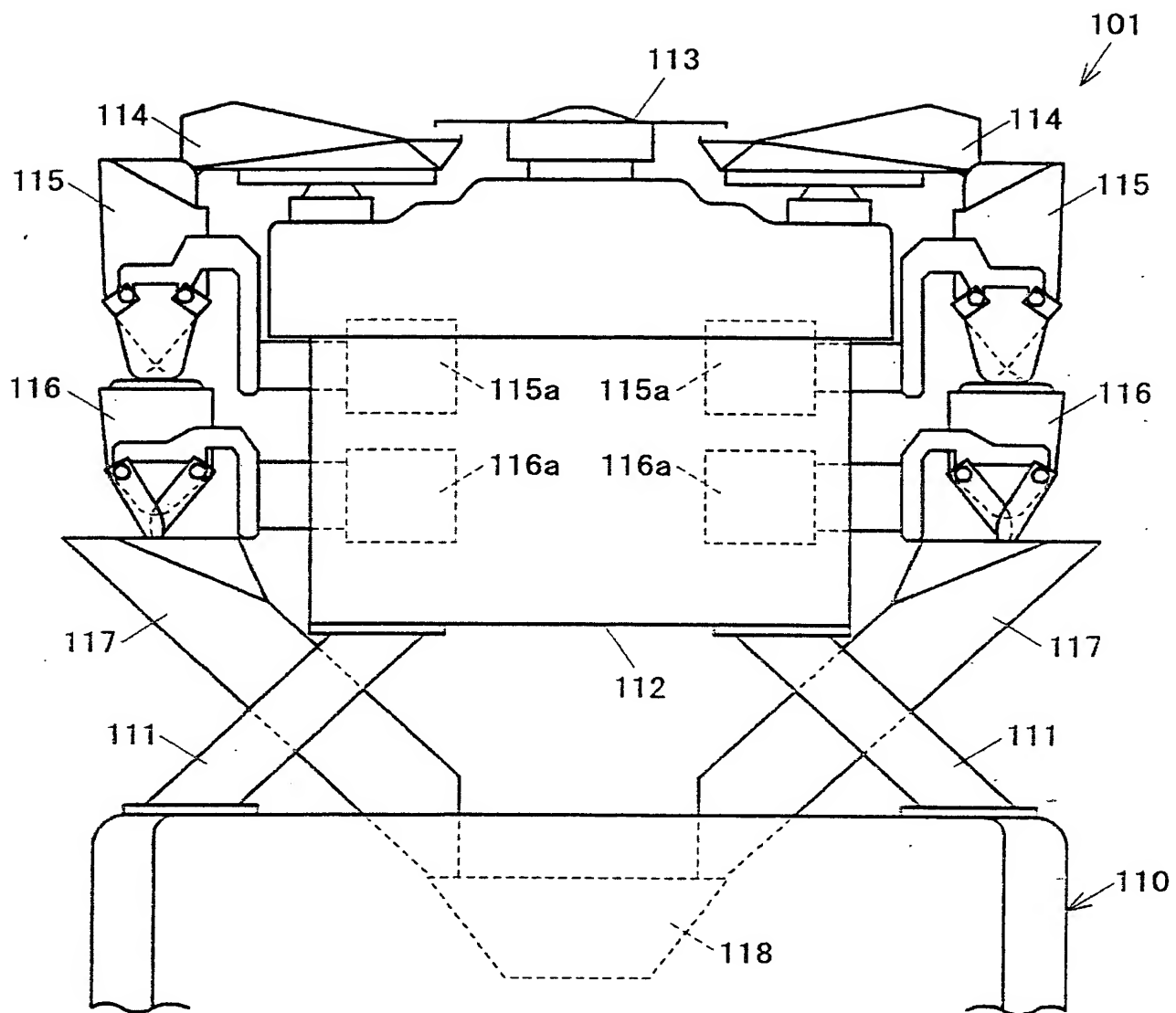


Fig. 2

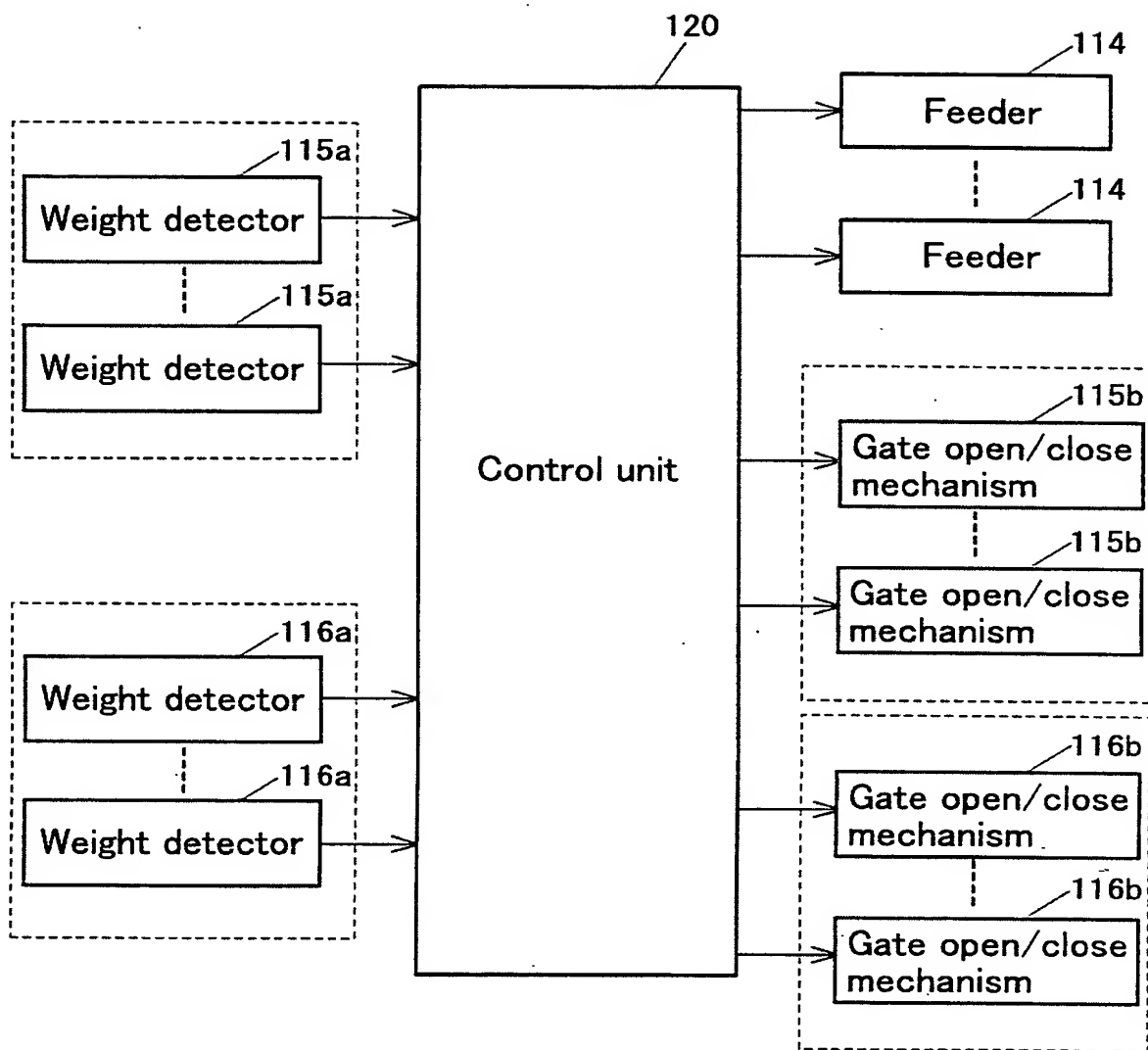
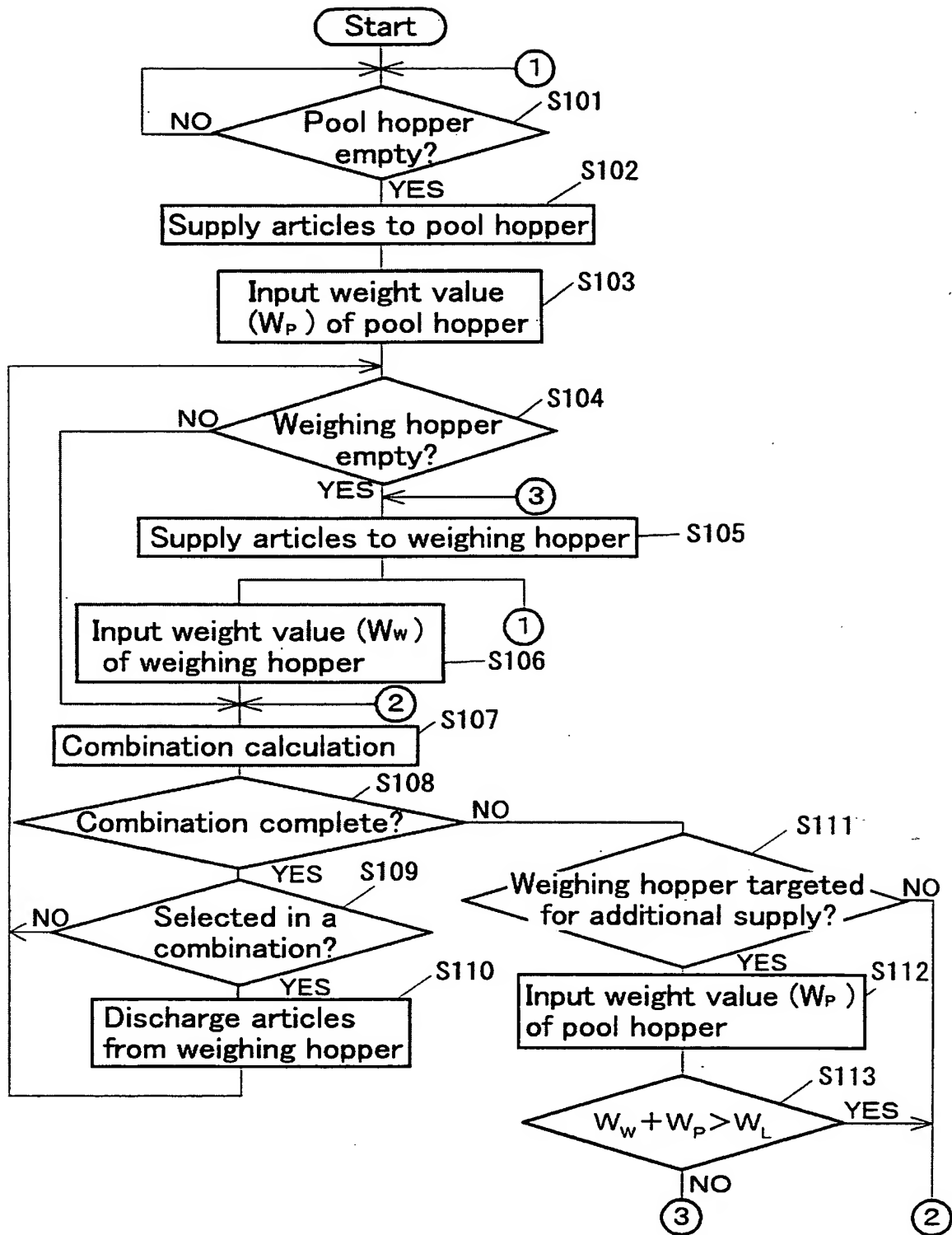


Fig. 3



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graph TD
    Start([Start]) --> S121[Set supply target value WP0 to  
the default supply target value WPD]
    S121 --> S122{Pool hopper empty?}
    S122 -- NO --> S126
    S122 -- YES --> S123[Supply articles to pool hopper]
    S123 --> S124[Input weight value WP of pool hopper]
    S124 --> S125[Set supply target value WP0 to  
the default supply target value WPD]
    S125 --> S126{Weighing hopper empty?}
    S126 -- NO --> S133
    S126 -- YES --> S127[Supply articles to weighing hopper]
    S127 --> S128[Input weight value Ww of weighing hopper]
    S128 --> S129
    S129 --> S130[Combination calculation]
    S130 --> S130_1{Combination complete?}
    S130_1 -- NO --> S126
    S130_1 -- YES --> S131{Selected in a combination?}
    S131 -- YES --> S132[Discharge articles from weighing hopper]
    S132 --> S126
    S131 -- NO --> S129
    S133{Weighing hopper targeted  
for additional supply?} -- NO --> S137
    S133 -- YES --> S134[Discharge articles from weighing hopper]
    S134 --> S135{Ww+Wp>WL?}
    S135 -- YES --> S137
    S135 -- NO --> S136{WL-(Ww+Wp)>WPD?}
    S136 -- YES --> S137
    S136 -- NO --> S137
    S137[Calculate next supply target value WP0 of  
pool hopper  
WP0=(WL-Ww-Wp)/2] --> S125
    S129 -- ⑤ --> S137
    S137 -- ⑥ --> S125

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graph TD
    Start([Start]) --> S141{Pool hopper empty?}
    S141 -- NO --> S141
    S141 -- YES --> S142[Driver feeder control variable A]
    S142 --> S143[Input weight value W_P of pool hopper]
    S143 --> S144{Weighing hopper empty?}
    S144 -- NO --> S144
    S144 -- YES --> S145[Supply articles to pool hopper]
    S145 --> S146[Input weight value W_w of pool hopper]
    S146 --> S147[Combination calculation]
    S147 --> S148{Combination complete?}
    S148 -- YES --> S149{Selected in a combination?}
    S148 -- NO --> S151{Weighing hopper targeted for additional supply?}
    S149 -- YES --> S150[Discharge articles from weighing hopper]
    S149 -- NO --> S144
    S150 --> S144
    S151 -- YES --> S152[Input weight value W_P of pool hopper]
    S151 -- NO --> S153{W_w + W_P > W_L}
    S152 --> S153
    S153 -- YES --> S151
    S153 -- NO --> S144
    S144 --> S154[Calculate deviation ΔW from supply target value W_PO  
ΔW = W_P - W_PO]
    S154 --> S155{ΔW?}
    S155 -- ≤ |α| --> S157[A = A - ΔA]
    S155 -- > α --> S156[A = A + ΔA]
    S155 -- < -α --> S156
    S156 --> S145
    S157 --> S145
    S145 --> S144

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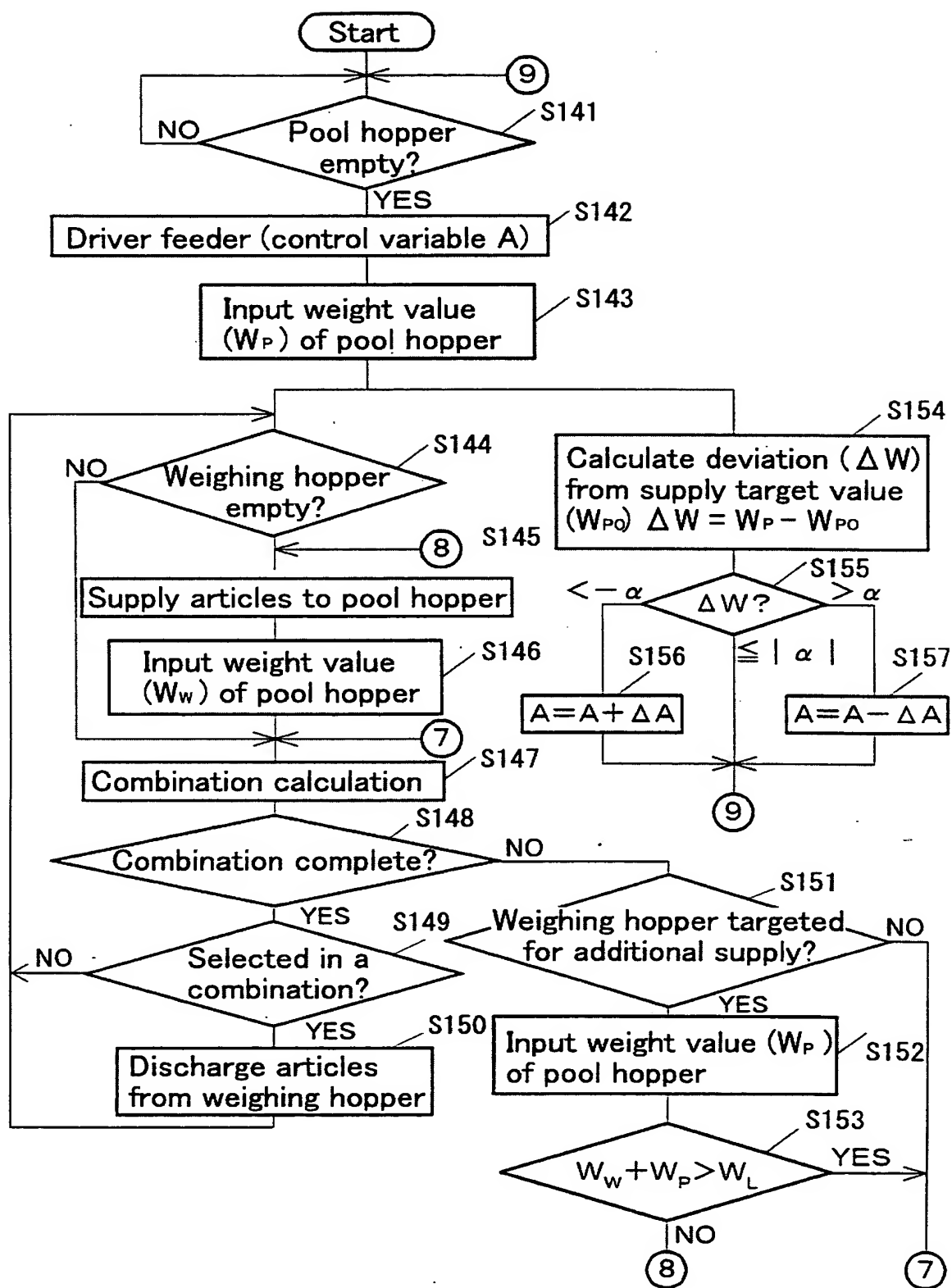


Fig. 6

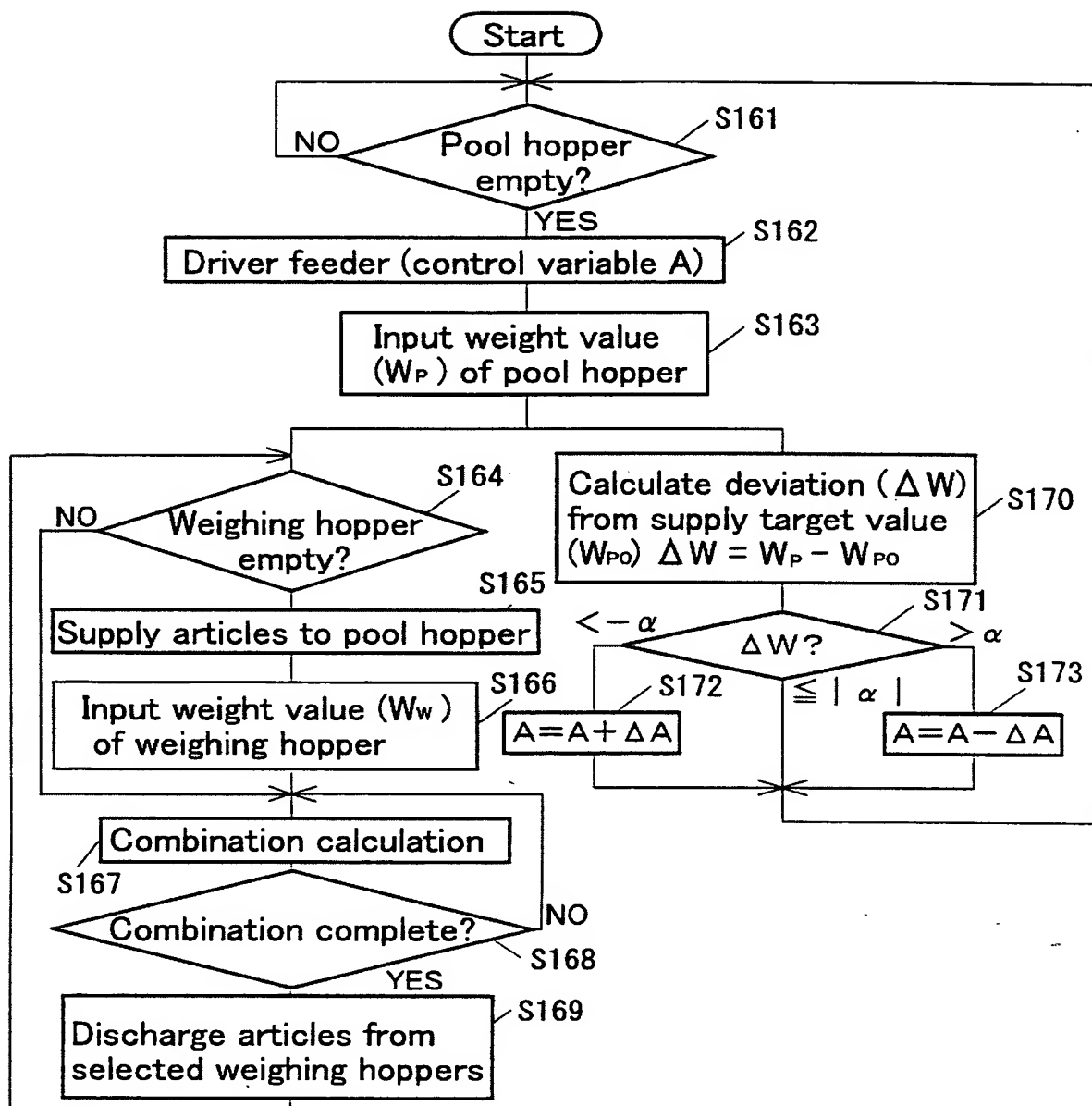


Fig. 7

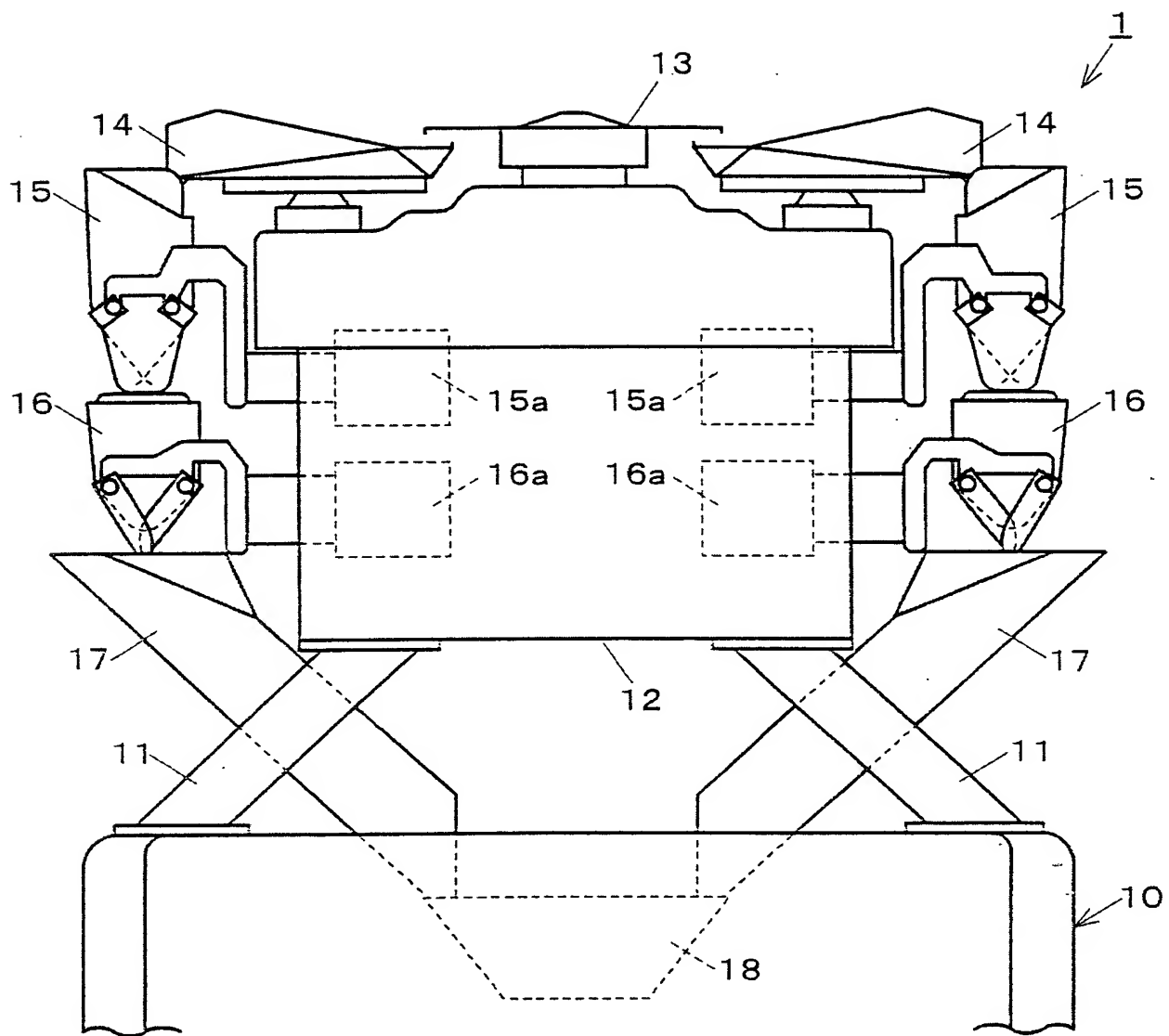


Fig. 8

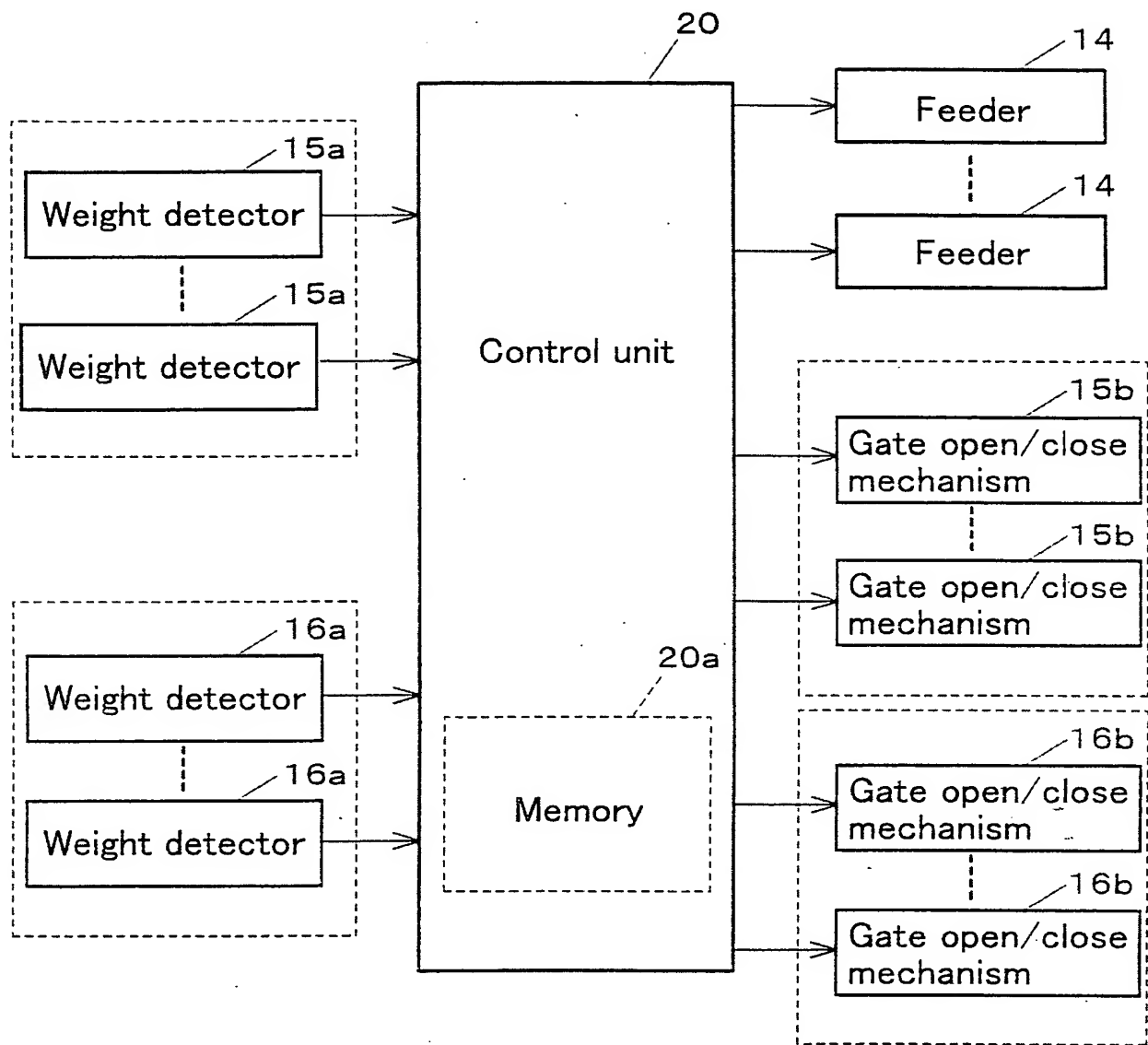


Fig. 9

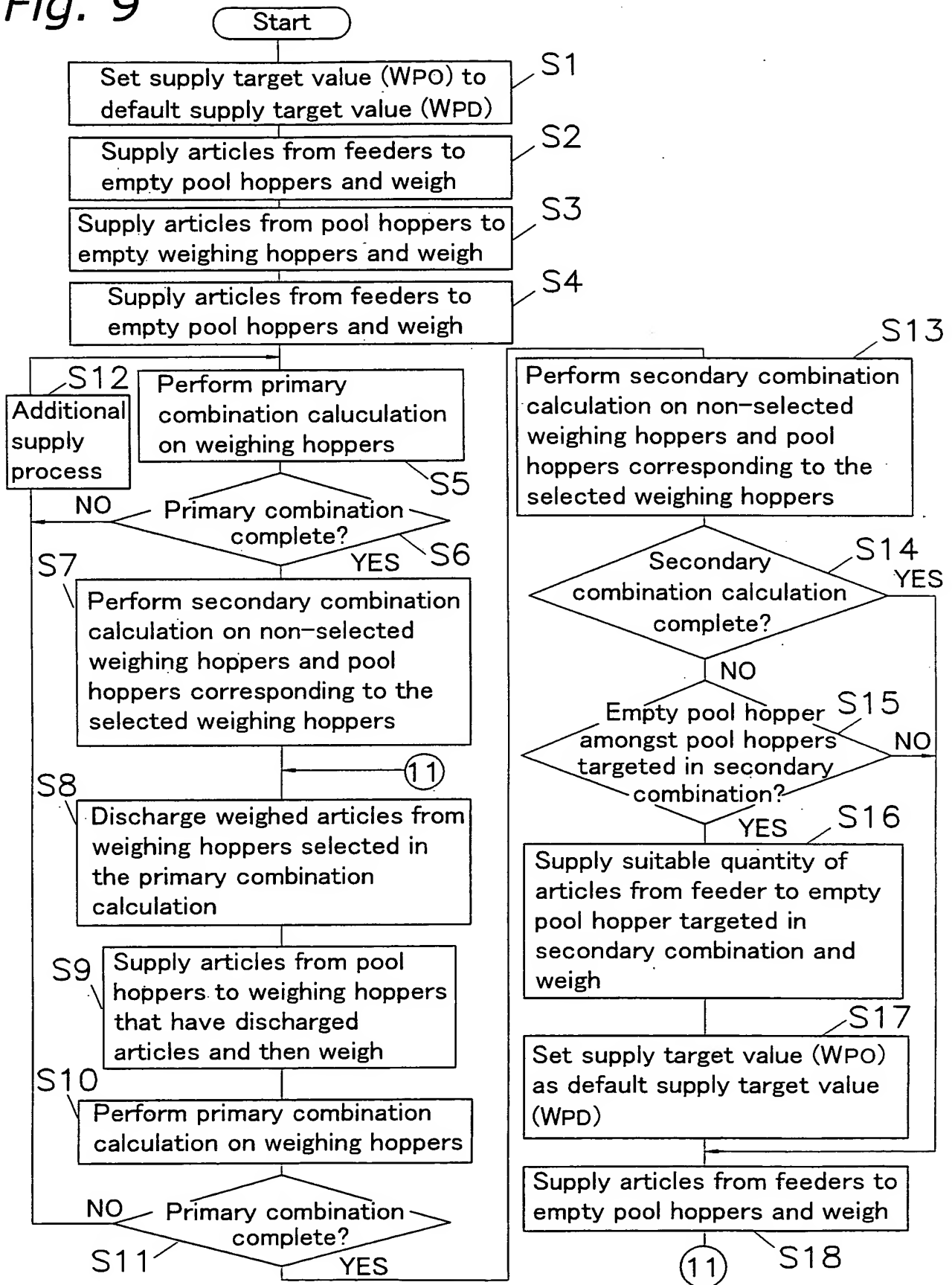


Fig. 10

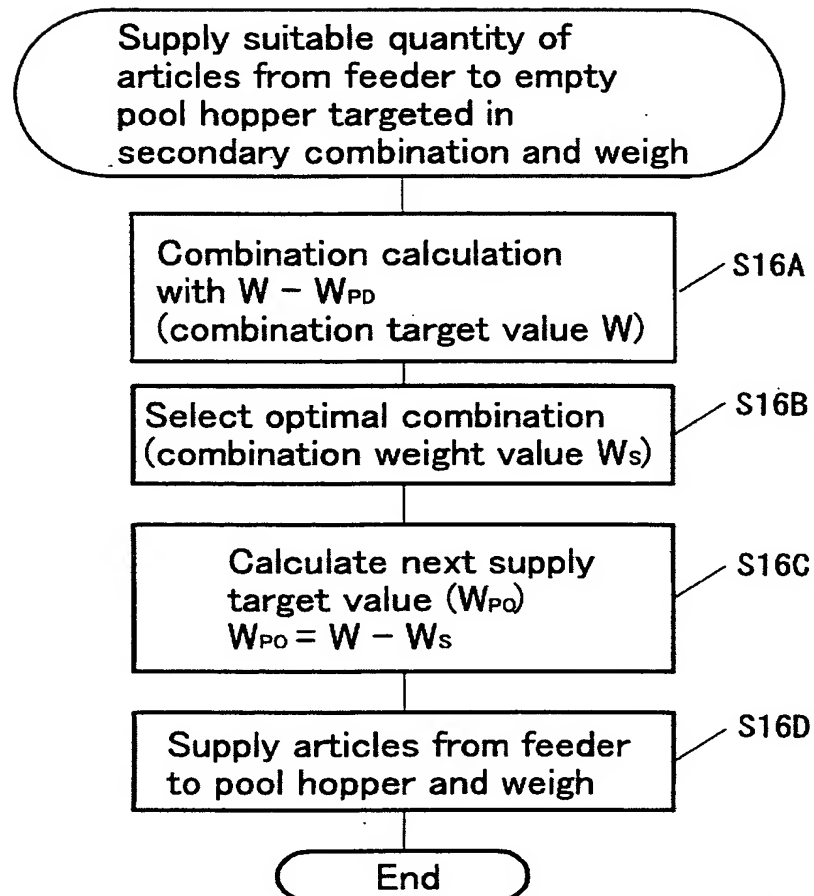


Fig. 11(a)

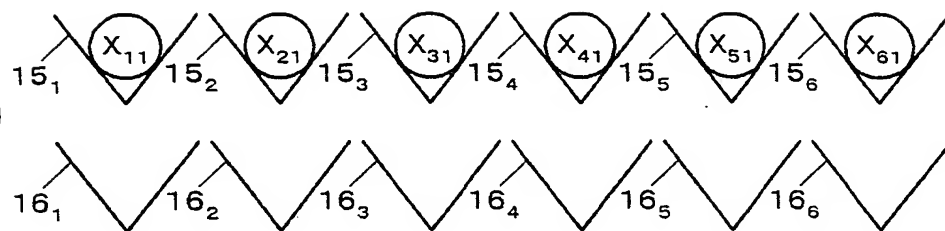


Fig. 11(b)

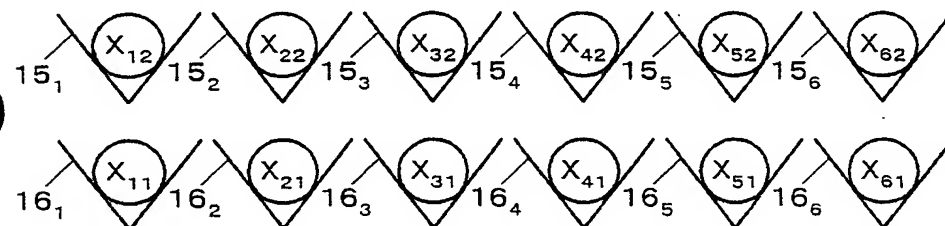


Fig. 11(c)

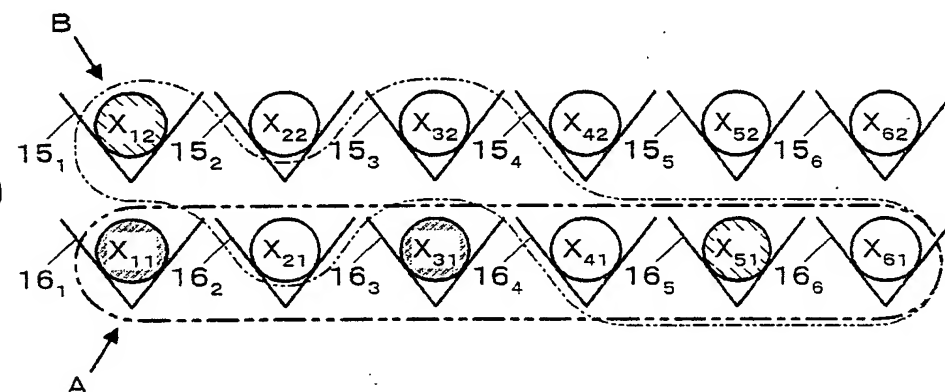


Fig. 11(d)

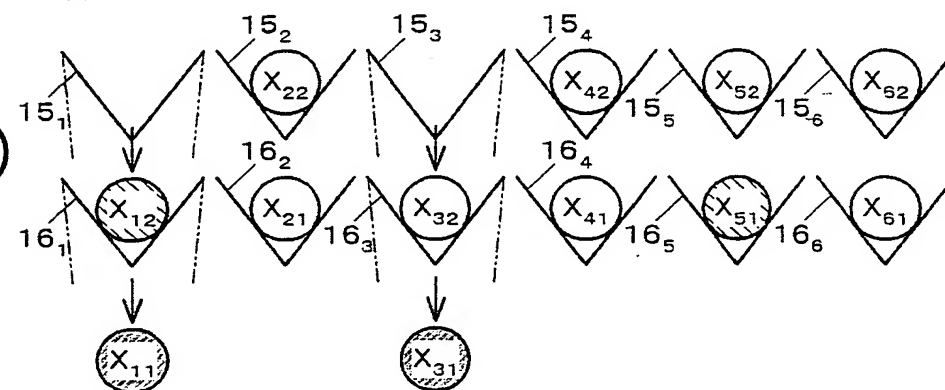


Fig. 12(a)

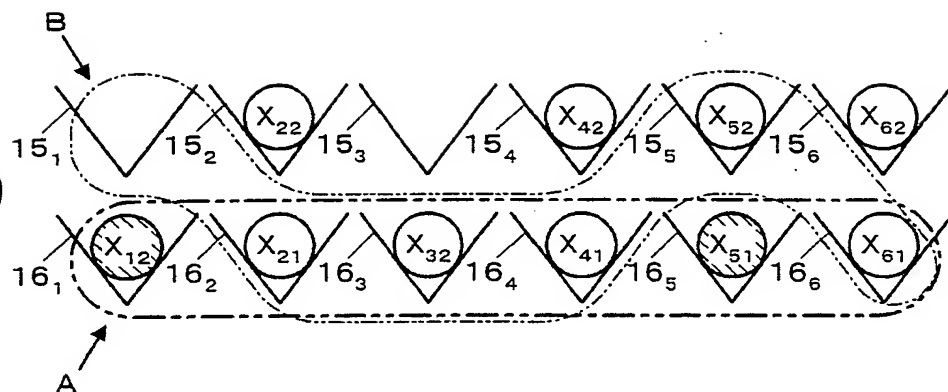


Fig. 12(b)

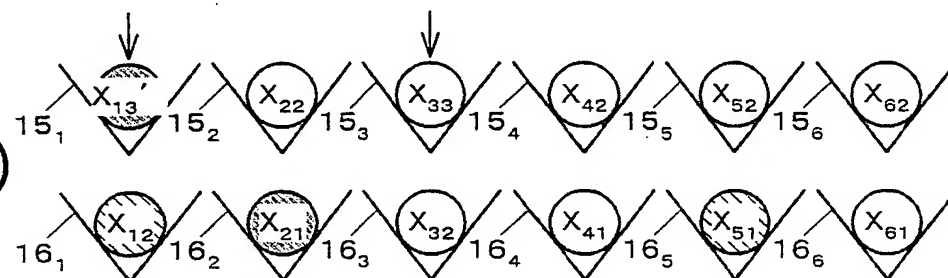


Fig. 12(c)

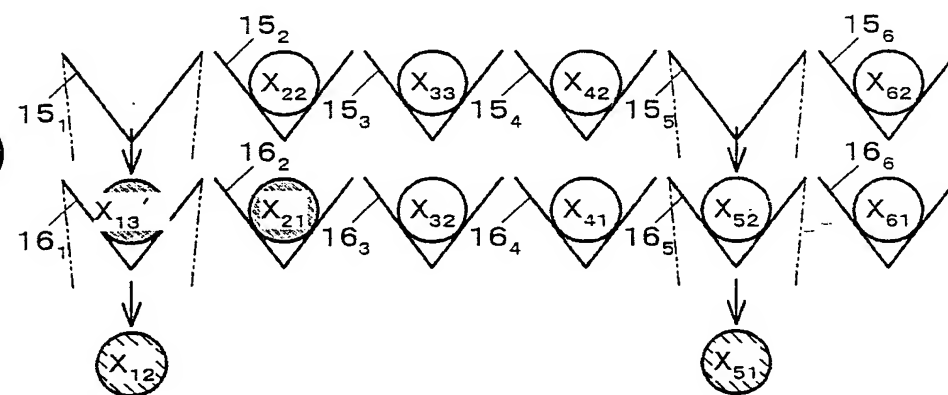


Fig. 13(a)

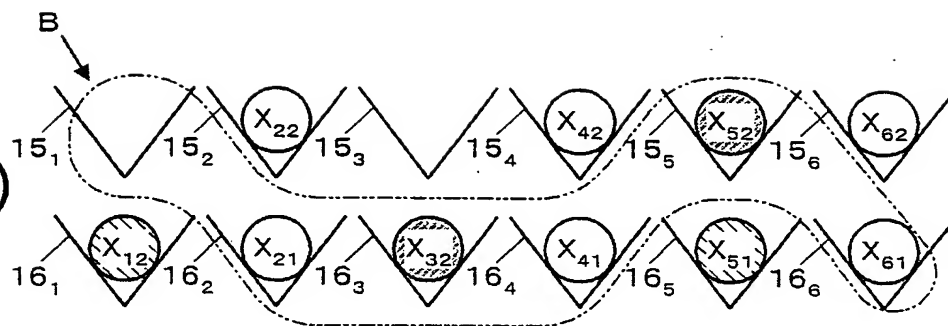


Fig. 13(b)

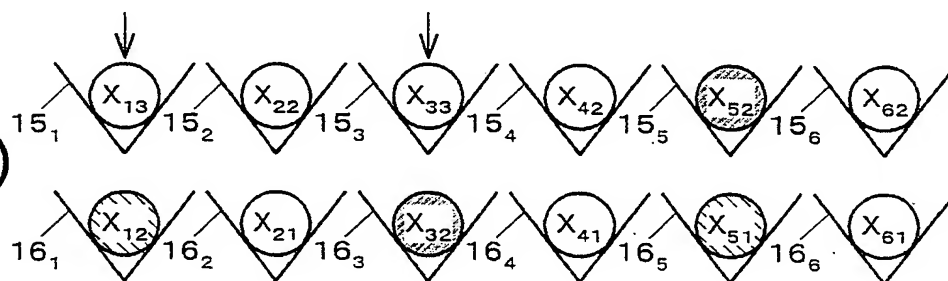


Fig. 13(c)

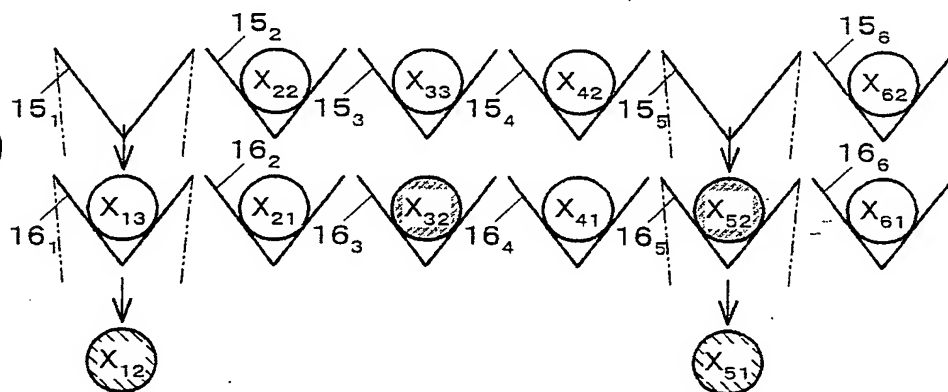


Fig. 14

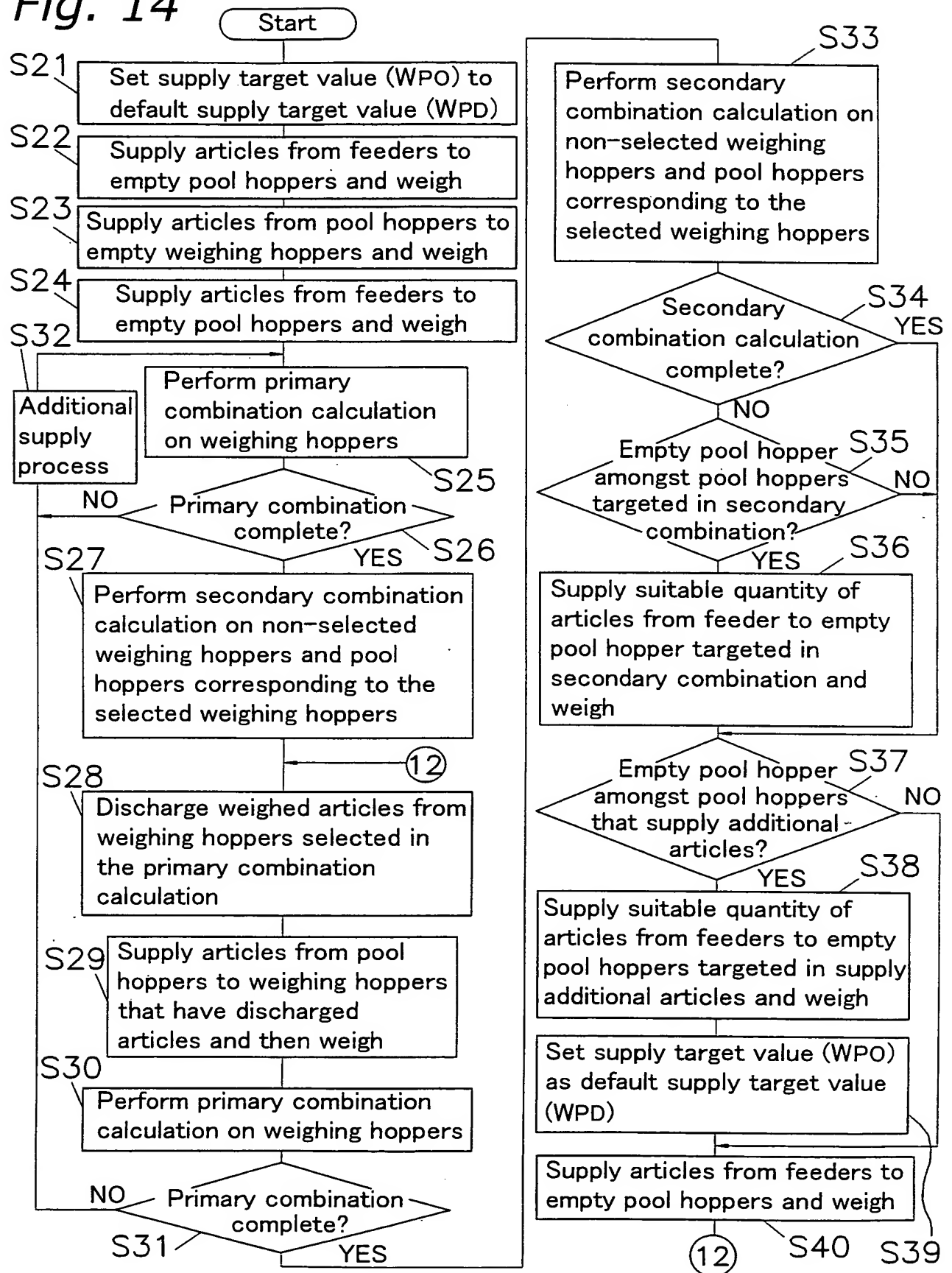


Fig. 15

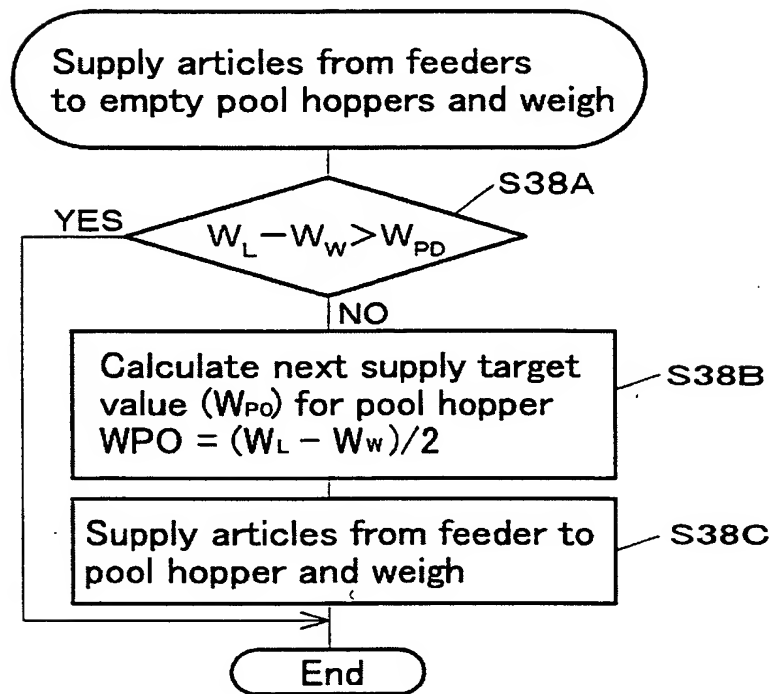


Fig. 16(a)

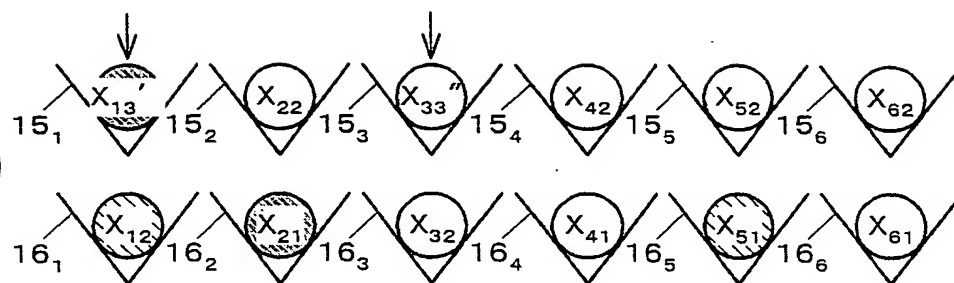


Fig. 16(b)

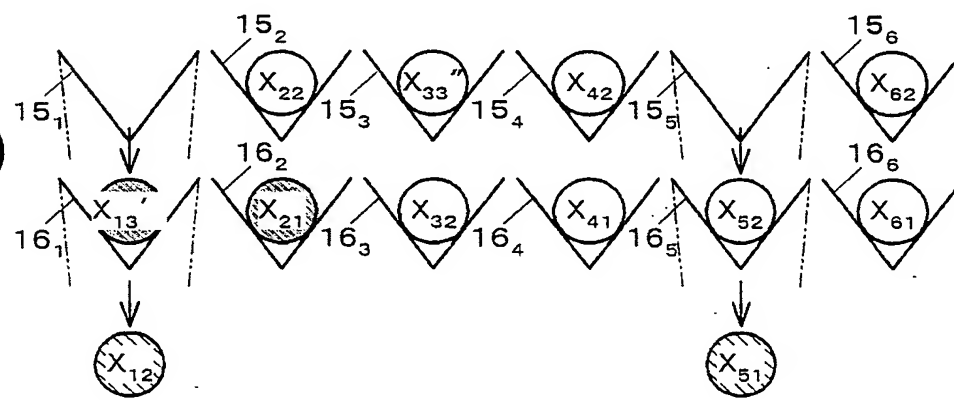


Fig. 17

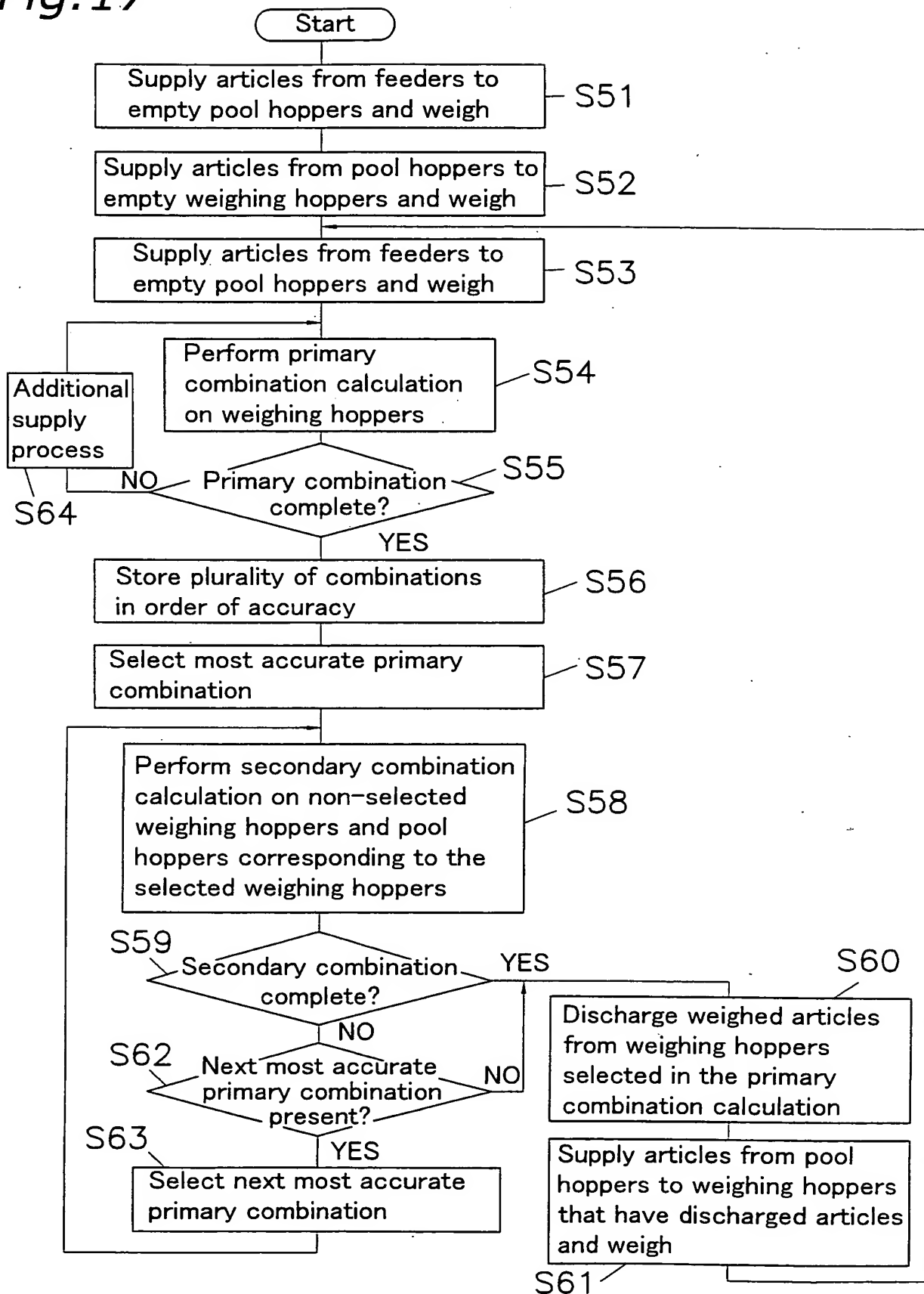


Fig. 18(a)

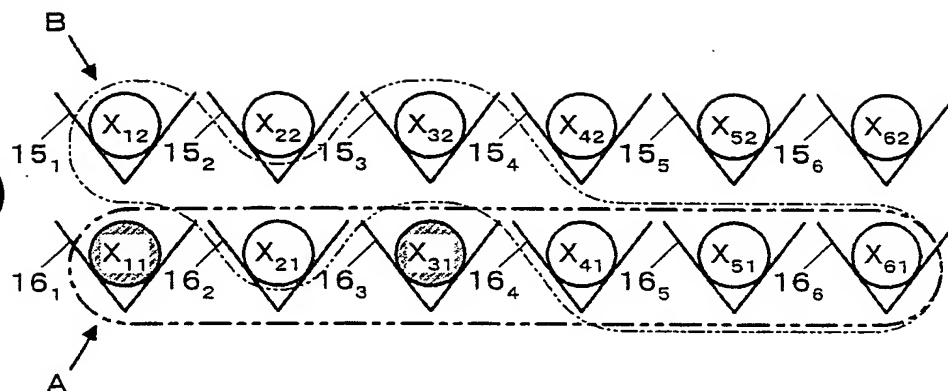


Fig. 18(b)

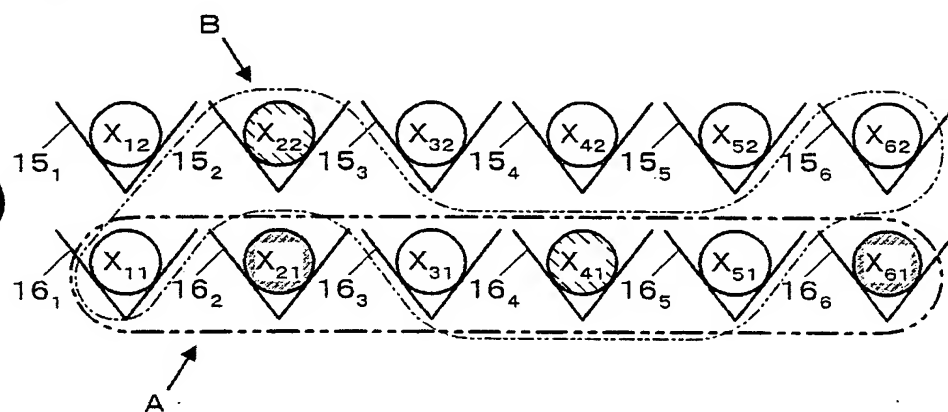


Fig. 18(c)

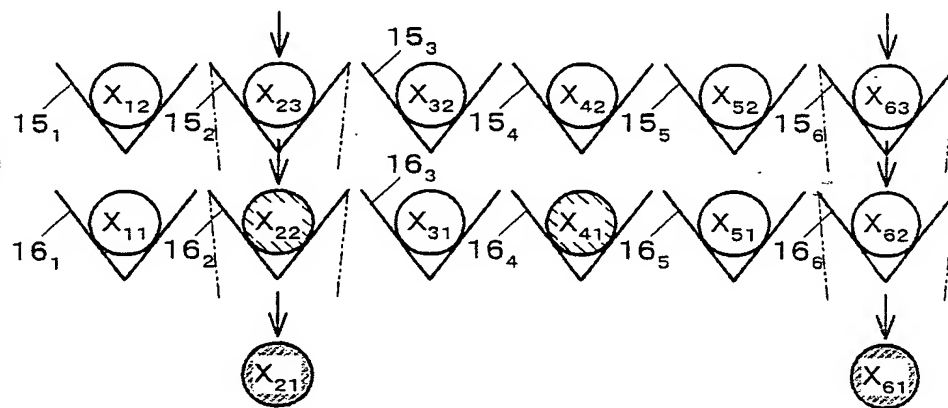


Fig. 19

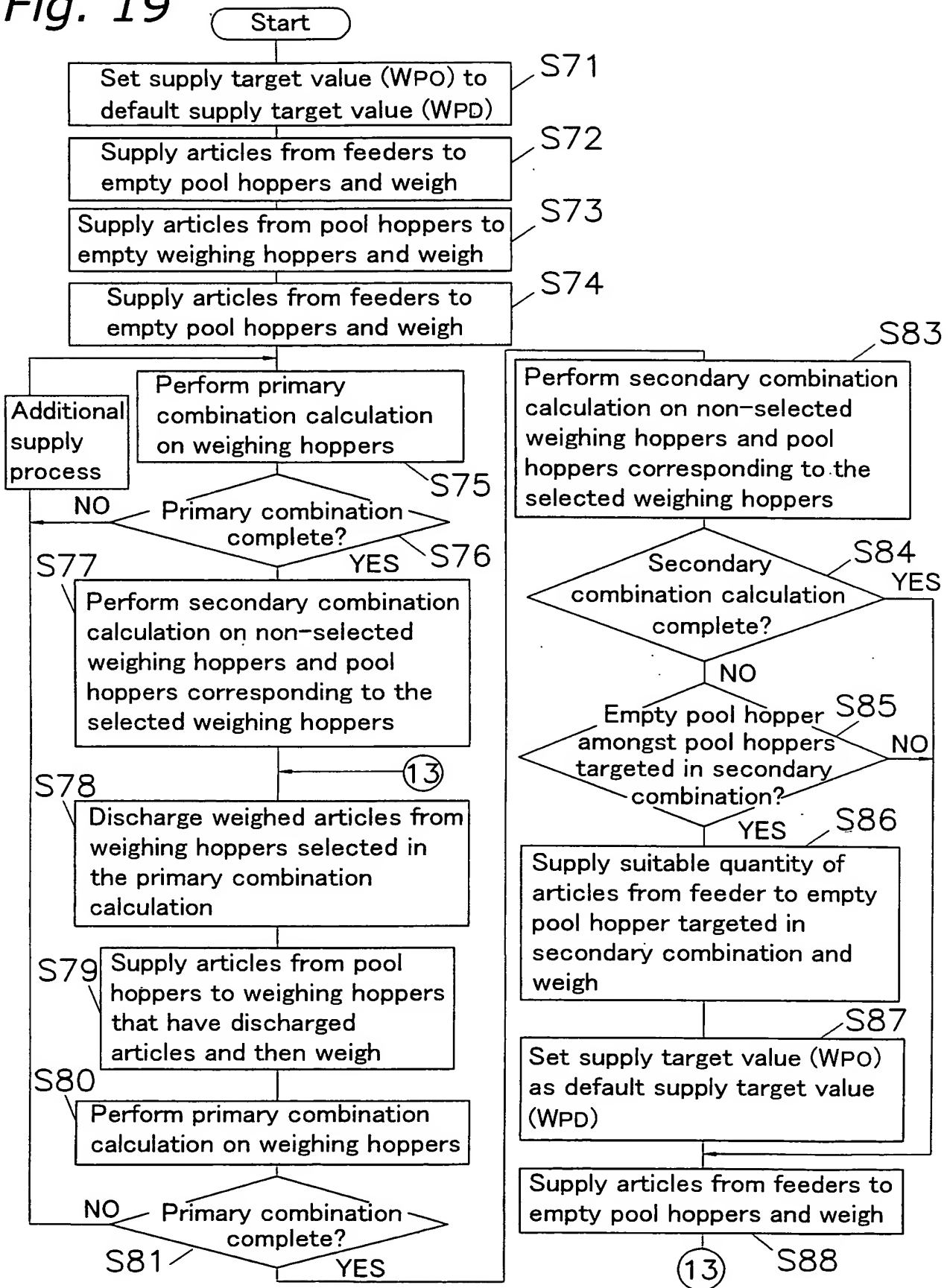


Fig. 20

